

# MODEL 40-715---PHILCO TROPIC

## SPECIFICATIONS

Philco-Tropic Model 40-715 is particularly recommended for locations where super reception of short wave is necessary and where the radio and the cabinet are exposed to extreme conditions. The receiver is specially constructed to withstand decay, spillage and deterioration caused by extreme conditions of humidity, heat, salt air and cold; and to stand up under the most severe tropic weather conditions.

The chassis is heavily plated, making it impervious to salt air, rust and corrosion.

The various parts, such as coils, condensers, chokes and transformers, are treated with special wax that will withstand very high temperatures. In addition the wax is treated with chemicals which repel rodents and insects.

The cabinet is treated with a special sealing compound which protects it against moisture and heat.

**TYPE CIRCUIT:** Model 40-715, code 121, is a five (5) tube A. C. operated radio employing a superheterodyne circuit with three tuning ranges for reception of Standard, Police and Shortwave Broadcast Stations. Connections are also provided for attaching a high impedance Electric Phonograph pick-up. In addition other features of design are: Automatic Volume

Control; Three Point Tone Control; Bass Compensation; and special temperature and humidity-proof compensators for reducing frequency drift to a minimum.

**POWER SUPPLY:** 100-130 or 200-260 volts A. C. The voltage ranges are selected by inserting the changeover plug as indicated on top of the power transformer.

**POWER CONSUMPTION:** 40 watts.

**TUNING RANGES:**  
530 to 1720 K. C.                      2.3 to 7.4 M. C.                      7.3 to 22 M. C.

**I. F. FREQUENCY:** 455 K. C.

**PHILCO TUBES:** 6J8EG, Converter-Oscillator; 78E, I. F. Amplifier; 75, Second Detector, First Audio and A. V. C.; 41E, Audio Output; 84, Rectifier.

**AERIAL AND GROUND:** To obtain maximum performance from this radio, the Philco Safety Aerial, Part No. 40-6370 should be used and a good ground connection to the nearest water pipe or any other good source.

**CABINET DIMENSIONS:**  
Height, 12%.                      Width, 16%.                      Depth, 9%.

## ALIGNING COMPENSATING CONDENSERS

### EQUIPMENT REQUIRED

(1) **Signal Generator.** In order to properly adjust this receiver a calibrated signal generator such as Philco Model 077 A. C. or Model 177 battery operated are required. These signal generators cover a frequency range of 540 to 36,000 K. C.

(2) **Indicating Device.** To obtain maximum signal strength and accurate adjustment of the padders a vacuum tube volt-

meter and circuit tester such as Philco Models 027 and 028 is recommended. These testers also contain an audio output meter which may be used as an indicating device.

(3) **Aligning Tools.** Fiber handle screw driver, Philco Part No. 45-2610.

### CONNECTING ALIGNING INSTRUMENTS

**Vacuum Tube Voltmeter:** To use the vacuum tube voltmeter as an aligning indicator it should be connected to the A. V. C. circuit as follows:

1. Connect the negative (-) terminal of the voltmeter through a 2 meg. resistor to the converter grid (6J8G). The resistor must be connected directly to the grid of the tube and the voltmeter wire attached to the resistor.

2. Connect the positive (+) terminal to the chassis ground terminal.

**Audio Output Meter:** If this type of meter is used as an aligning indicator, it should be connected to the plate and

screen terminals of the 41 tube. Adjust the meter for the 0 to 30 volt A. C. scale.

After connecting the aligning meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown in Fig. 1. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

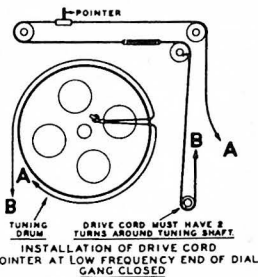


FIG. 1. DIAL CALIBRATION.

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	6J8EG	.1 mfd.	455 K. C.	580 K. C.	Vol. Max. Tone Treble Range Switch "Brdcat"	24, 16B, 16A	
2	Ant. & Grnd.	200 mmfd.	1500 K. C.	1500 K. C.	Vol. Max. Tone Treble Range Switch "Brdcat"	9A, 15A	Note B
3	Ant. & Grnd.	200 mmfd.	580 K. C.	580 K. C.	Vol. Max. Tone Treble Range Switch "Brdcat"	11	Roll Gang Repeat Oper. 2
4	Ant. & Grnd.	400 ohms	7.0 M. C.	7.0 M. C.	Range Switch "Police"	9	Roll Gang
5	Ant. & Grnd.	400 ohms	20 M. C.	20 M. C.	Range Switch "S.W."	5A, 5	Note C

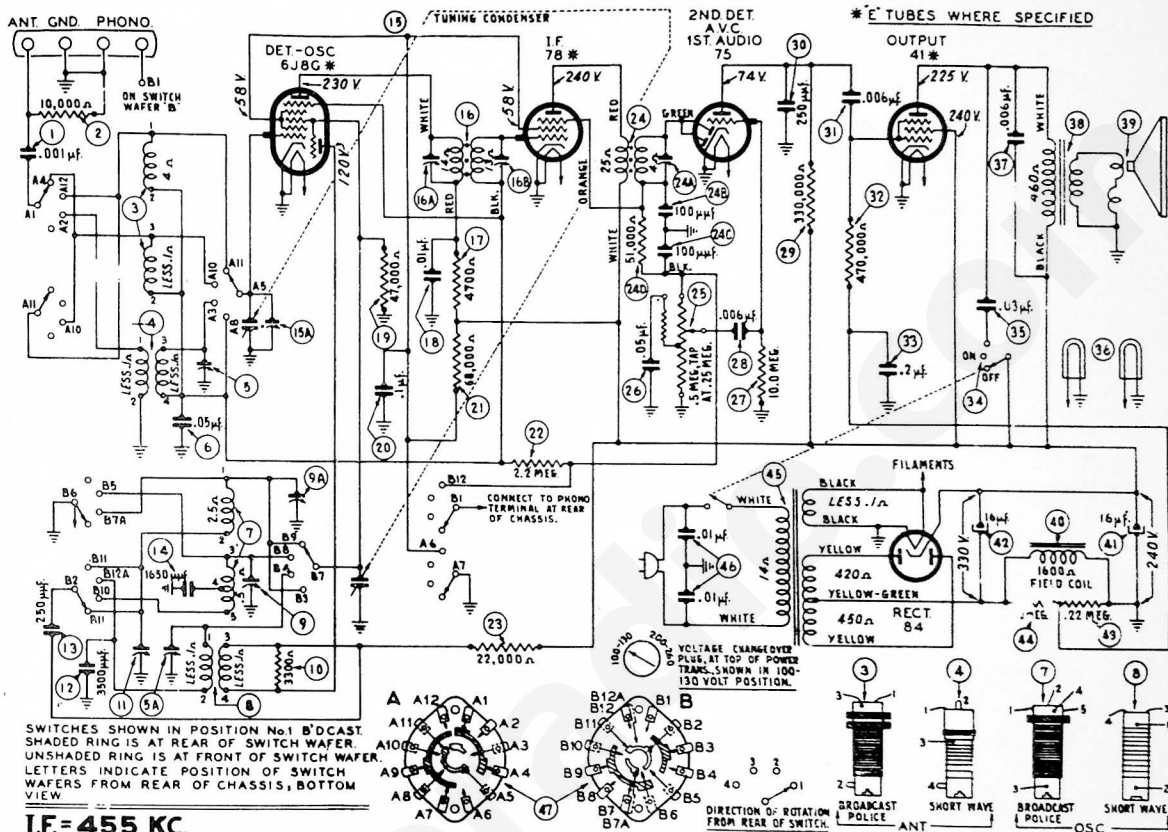
**NOTE A**—The "Dummy Antenna" consists of a condenser or resistance connected in series with the signal generator output lead (high side). Use the capacity or resistance as specified in each step of the above procedure.

**NOTE B**—**DIAL CALIBRATION:** In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning

condenser closed (maximum capacity), set the dial pointer on the first mark on the left edge (low frequency end) of the broadcast scale.

**NOTE C**—When adjusting compensator (5A) be sure to tune in the fundamental signal (20 M. C.) instead of the image signal. If the compensator is correctly adjusted, the image signal will be found by turning dial 910 K. C. below the fundamental signal, which will be 19,090 M. C.

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SWITCHES SHOWN IN POSITION No 1 B'CAST SHADED RING IS AT REAR OF SWITCH WAFER UNSHADED RING IS AT FRONT OF SWITCH WAFER LETTERS INDICATE POSITION OF SWITCH WAFERS FROM REAR OF CHASSIS, BOTTOM VIEW

**IF=455 KC.**

## SCHEMATIC DIAGRAM MODEL 40-715

### Replacement Parts — Model 40-715

SCHE. No.	DESCRIPTION	PART No.
1	Tubular Cond. (.001 mfd.)	30-4882
2	Resistor (20,000 ohms, 1/2 watt)	33-310339
3	Antenna Trans. (Broadcast, Police)	33-3141
4	Antenna Trans. (Short Wave)	33-3142
5A	Compensator (2 section)	31-6287
6	Tubular Cond. (.05 mfd.)	30-4809
7	Oscillator Trans. (Broadcast, Police)	32-3142
8	Oscillator Trans. (Short Wave)	33-3144
9A	Compensator (2 section)	31-6287
10	Resistor (3300 ohms, 1/2 watt)	33-233339
11	Compensator (1 section)	31-6119
12	Mica Cond. (3500 mmfd.)	30-1094
13	Mica Cond. (15 section)	33-822339
14	Mica Cond. (1650 mmfd.)	5877
15	Tuning Condenser	33-322339
16A	1st I. F. Transformer	33-3139
16B	Part of 16	
17	Resistor (4700 ohms, 1/2 watt)	33-247339
18	Tubular Cond. (.01 mfd.)	30-4372
19	Resistor (47,000 ohms, 1/2 watt)	33-347339
20	Tubular Cond. (.1 mfd.)	30-4327
21	Resistor (88,000 ohms, 1/2 watt)	33-388439
22	Resistor (2.2 meg., 1/2 watt)	33-822339
23	Resistor (22,000 ohms, 1/2 watt)	33-322339
24	2nd I. F. Transformer	33-3144
24A	Part of 24	
24C	Part of 24	
25	Volume Control (.5 meg.)	33-5305
26	Tubular Cond. (.01 mfd.)	30-4819
27	Resistor (10.0 meg., 1/2 watt)	33-610339
28	Tubular Cond. (.1 mfd.)	30-4383
29	Resistor (330,000 ohms, 1/2 watt)	33-333339
30	Mica Cond. (.280 mmfd.)	30-1116
31	Tubular Cond. (.006 mfd.)	30-8810
32	Resistor (470,000 ohms, 1/2 watt)	33-447339
33	Tubular Cond. (.2 mfd.)	30-4387
34	Tone Control and On-Off Switch	42-1481
35	Pilot Lamps	34-208-E
36	Tubular Cond. (.03 mfd.)	30-8591
37	Output Transformer	33-865-E
38	Cone and Voice Coil Assembly (Spkr. Part No. 36-1452)	30-4103
40	Field Coil (Replace Spkr. Part No. 36-1452)	30-4819
41	Electrolytic Cond. (.18 mfd., 300 V.)	30-2363
42	Resistor (18 mfd., 400 V.)	30-2384
43	Resistor (2.2 meg., 1/2 watt)	33-822339
44	Resistor (1.0 meg., 1/2 watt)	33-810339
45	Power Transformer (100-130 V., 200-260 V., 80-60 cycles)	33-8006

SCHE. No.	DESCRIPTION	PART No.
46	Line Cond. (.01-.01 mfd.)	3903-000
47	Wave Switch	42-1480

**MISCELLANEOUS PARTS**

Clamp (Dial Mounting)	58-1271
Cabinet	10365A
Cable and Plug (Power Supply)	L-2259
A. C. Plug (Special)	L-1367
Bial	L-5489
Drive Cord Assembly (Pointer Operation)	31-2359
Gasket (Dial Mounting)	27-9358
Knobs (Tuning, Tone, Volume, Wave Sw.)	27-4332

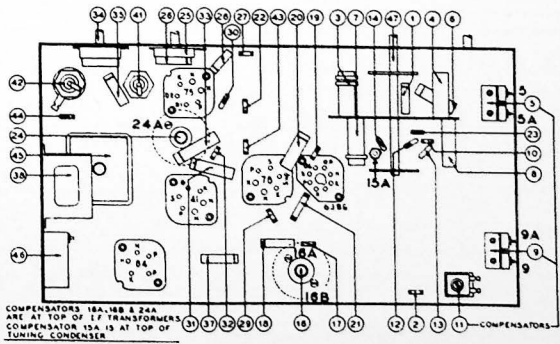


FIG. 2. PART LOCATIONS, UPSIDE OF CHASSIS.

MANY OF THE PARTS IN THIS PHILCO SUCH AS CONDENSERS AND RESISTORS, ARE HELD TO MUCH CLOSER TOLERANCE THAN STANDARD REPLACEMENT PARTS. GENUINE PHILCO REPLACEMENT PARTS MUST BE USED TO OBTAIN SATISFACTORY PERFORMANCE OF THIS MODEL.